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ABSTRACT

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A direct-write micro- or nano-lithography method for depositing a functional material with a preferred orientation onto a target surface. The method includes the steps of (1) forming a precursor fluid to the functional material; (2) operating a sub-micrometer tip to discharge, on contact, the precursor fluid onto the target surface so as to produce a desired pattern of deposited functional material in sub-micrometer dimensions; and (3) during the pattern-producing step, subjecting the deposited material to a highly localized electric or magnetic field for attaining a preferred orientation in at least a portion of the functional material. The method is particularly useful for microfabrication, nanotechnology, and molecular electronics.

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